REMARKS

In the Office Action mailed November 23, 2004, the Examiner rejected all of the pending claims 1-11. New claims 12 and 13 have been added. Thus, claims 1-13 are pending and under consideration. No new matter has been added. The rejections are traversed below.

REJECTION UNDER 35 U.S.C. §103

At item 4 of the outstanding Office Action, claims 1-11 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,309,437, issued to Perlman, *et al.* (hereinafter Perlman), in view of a Request for Comments document, authored by Plummer (hereinafter Plummer). *See* Office Action, at Page 2.

Perlman describes a "bridge-like" Internet Protocol (BLIP) router that functions as a bridge for non-TCP/IP traffic and in a "bridge-like manner" for TCP/IP traffic. *See* Perlman, column 5, lines 14-17. According to Perlman, an extended Local Area Network (LAN) is configured to include a plurality of extended LAN segments connected by BLIPs. After a data packet is received at a BLIP, a determination is made as to whether the data packet has been transmitted under TCP/IP protocols. If it is determined that the packet has been transmitted under TCP/IP, the packet is processed in a "manner analogous to a bridge." Alternatively, if it is determined that the packet has been transmitted under a non-TCP/IP protocol, the packet is processed "in the manner of a conventional bridge." *See* Perlman, column 6, lines 53-61.

Plummer describes a method for converting network protocol addresses to 48 bit Ethernet Addresses for transmission on ethernet hardware. In Plummer, as a data packet is transmitted through the network layers, routing determines the protocol address of the "next hop" for the data packet. *See* Plummer, "Packet Generation." Thus, a data packet includes a target protocol address of the next location at which the data packet will arrive. Upon receiving the data packet, this location consults an Address Resolution module, which converts the target protocol address to a 48 bit Ethernet address. *See* Plummer, "Packet Generation."

The Examiner has asserted that Perlman teaches all elements of independent claim 1 except "an insertion unit which inserts in a packet an IP address and a link-layer address of a destination host apparatus of the packet . . .." The Examiner, however, has alleged that Plummer teaches the standard of inserting an IP address and a link-layer address in a data packet before transmitting the data packet from a host to a destination. The Examiner then concludes that it would have been obvious to one of ordinary skill in the art to have combined

Perlman and Plummer to provide IP and link-layer addresses in the system of Perlman to allow ARP protocol resolution necessary for an ethernet system to function.

Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness. In particular, unlike the present invention as defined by claim 1, Plummer does not teach or suggest a ***host*** including an ***insertion unit which inserts an IP address and a link-layer address*** of ***a destination host apparatus*** of the data packet. Rather, a data packet in Plummer merely includes a protocol address of a **target** location, which is merely a "stopping point" in route to a destination. A data packet in Plummer does not include a destination protocol address. *See* Plummer, Packet Format. For example, in Plummer, if a data packet is traveling from computer A to a router B and then to its final destination computer C, upon being received at router B, the data packet includes the address of router B (a target hop location). An Address Resolution Protocol (ARP) table is then consulted to determine the address of computer C, the final destination. After the table is consulted, the target address is converted or replaced with another address, for example, an address of the final destination.

As a result of inserting an IP address and a link-layer address of the destination host at the source host, unlike Plummer, the system in the present invention is not required to convert or replace the address(es) in the data packet. *See* Specification, FIG. 5, (clearly indicating that the host from which the data packet is being transmitted, that is host 20, inserts the addresses of the destination host, that is host 26). In particular, the specification of the present invention clearly specifies that the router is not required to perform processing such as the replacement or conversion of the MAC address, for example, of a data packet. The specification further states that an Address Resolution Protocol (ARP) table is unnecessary in the router. *See* Specification, Page 31, lines 12-18. As a result of not having to consult an ARP table, the hardware size of the router is reduced in the present invention. Moreover, the speed of the router can be increased. *See* Specification, Page 37, lines 9-16.

In addition, as indicated by claim 1, a packet is delivered from a first host apparatus to a second host apparatus via a router. The first host apparatus has an insertion unit which inserts a destination IP address and a destination link-layer address to a packet, whereas conventional hosts, for example, the hosts of the references, would add a destination IP address and a router link-layer address.

The burden of establishing a *prima facie* case of obviousness based upon the prior art lies with the Examiner. In re Fritch, 23 U.S.P.Q. 2d 1780, 1783 (Fed. Cir. 1992). According to In re Fritch, the Examiner "... can satisfy this burden only by showing some objective teaching in

the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references." The Applicants respectfully assert that none of the cited references teach or suggest a "host apparatus," including " an insertion unit which inserts in a packet an IP address and a link-layer address of a destination host apparatus of the packet . . .."

Therefore, withdrawal of the outstanding rejection is requested. Claim 1 is patentable over Perlman in view of Plummer in light of the foregoing. Claims 2-3 depend from claim 1 and are thus patentable for at least the reason offered above with respect to claim 1. Claims 4, 8 and 9 recite language similar to that of claim 1 and are also patentable for at least the reason offered above with respect to claim 1.

Regarding claims 10-11, as recited in the claims, the transmission unit transmits a received packet "while maintaining the same destination link-layer address as that in said received packet," unlike in the present invention. In other words, the transmission unit of claims 10-11 does not change the specified link-layer address of the received packet. In contrast, conventional routers such as those disclosed in the references change the address field of a received packet when forwarding it to its destination, due to the received data packet containing a link-layer address designating the particular router itself.

DEPENDENT CLAIM

Regarding claim 2, the Examiner has alleged that Perlman teaches a packet transmission system wherein each host apparatus in a first host group further comprises a unit which determines whether a destination host apparatus belongs to a subnetwork at a first predetermined level in a network hierarchy, based on said IP address of the destination host apparatus and a first subnet mask.

Applicants respectfully submit that Perlman does not teach or suggest the above referenced element of claim 2. The present invention, as defined by claim 2, teaches a host including a unit which determines whether a destination host apparatus belongs to a subnetwork at a first predetermined level in a network hierarchy based on a first subnetwork mask and the destination IP address of the data packet.

By contrast, Perlman examines the IP destination subnet address to determine whether it is in an IP database in an attempt to learn of the packet's directional location. If the IP address is present in the database and thus the directional location of the packet has been determined, Perlman then determines if the IP destination subnet directional location is the same as the direction from which the packet was received. Thus, Perlman does not teach or suggest a

determination of whether a host belongs to a subnetwork at a first predetermined level in a network hierarchy based on a first subnetwork mask and the destination IP address of the data packet. Therefore, claim 2 is also patentable over Perlman for the reason offered above.

NEW CLAIM

New claim 12 has been added and recites no new matter. Applicants submit that new claim 12 is also patentable over the cited references, as none of the cited references teach or suggest, "an insertion unit adapted to insert into a data packet an IP address and a link-layer address of said destination host apparatus and a transmission unit adapted to transmit said data packet into which said IP address and said link-layer addresses have been inserted"

New claim 13 has been added and recites no new matter. Applicants submit that new claim 13 is patentable over the cited references, as none of the cited references teach or suggest, "inserting into the data packet an IP address and a link-layer address of a destination host apparatus at a source host apparatus."

CONCLUSION

In light of the foregoing, claims 1-13 are in condition suitable for allowance. An early Notice of Allowance is respectfully requested. If any further fees, other than and except for the issue fee, are necessary with respect to this paper, the USPTO is requested to obtain the same from deposit account number 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

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By: _____
Reginald D. Lucas
Registration No. 46,388

1201 New York Avenue, NW, Suite 700
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501